

REMARKS

Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

I. CLAIM STATUS & AMENDMENTS

Claims 1-7 and 15-18 are pending in this application, and stand rejected.

Claim 1, 2 and 4 have been amended.

Support for the Markush group added to claim 1 can be found in original claims 2 and 5, and in the specification, for example, at page 9, lines 15-30.

Support for the changes to claims 2 and 4 can be found in the claims as originally filed.

The specification has been amended at page 1, immediately after the title to update the priority information regarding the parent application.

Therefore, no new matter has been added by this amendment

II. REJECTION UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claim 1 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons set forth in item 2 on page 2 of the Office Action.

This rejection is respectfully traverse this rejection for the following reasons.

Kindly note that this same rejection was made and overcome in parent application Serial No. 09/913,851, now U.S. Patent No. 6,668,535.

“Elongation in stretch” is measured according to the Test Method 8.11A of JIS L1013 (1999). See lines 1-19 on page 33 of the instant specification. Attached herewith are an English translation of Test Method 8.11A of JIS L1013 (1999) and a copy of a Rule 132 Declaration by Mr. Hatano. These documents were submitted in the parent application to overcome an identical rejection. It is apparent from these documents that the terms “elongation percentage in stretch,” “stretch modulus of elasticity” and “tenacity having a unit of N/tex” as used in the instant specification are art recognized terms.

Furthermore, regarding the phrase “tenacity having a unit of N/tex,” tenacity as discussed in Tables 1 to 4 of this specification means tensile strength. This is clear from the description of

"tensile force" in lines 2-7 in the second paragraph on page 123, in FIGURE 7.1 on page 124, and the description of "tenacity" on TABLE 7.2 and the description of "strength" on the last paragraph on page 127 of Steven Warner, "Tensile Properties," FIBER SCIENCE, 1995, Prentice-Hall Inc., 1st ed., pp. 123-127, cited in the last Office Action.

Also note that N is Newton which is a force, not a mass. This is clear from the description of tenacity (g/d), i.e. gram/denir, in TABLE 7.2 of the Warner reference.

In view of the above, the rejection of claim 1 under 35 U.S.C. § 112, second paragraph, is untenable and should be withdrawn.

III. REJECTIONS UNDER 35 U.S.C. § 102

Claims 1-3 and 6 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Kimura, U.S. 3,629,053. See item 4 on pages 2-3 of the Office Action.

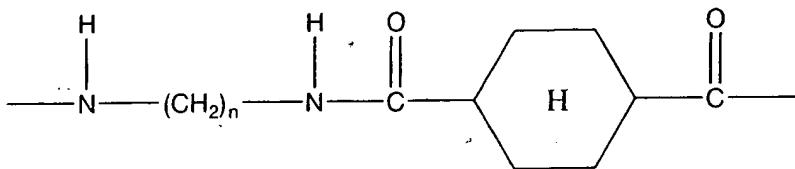
This rejection is respectfully traversed as applied to the amended claims for the following reasons.

To anticipate a claim, a cited prior art reference must either expressly or inherently teach each and every element of the claimed invention.

The amended claims call for a heat-resistant crimped yarn comprising heat-resistant high-functional fibers selected from the group consisting of para-aramid fibers, meta-aramid fibers, holaromatic polyester fibers and polyparaphenylene-benzobisoxazole fibers. Kimura fails to disclose or suggest these claimed heat-resistant high-functional fibers.

According to the Examiner, Kimura discloses a heat resistant crimped polyparaphenylene-terephthalamide yarn in the Abstract and in Example 2. However, this characterization of Kimura is not correct. Neither the phrase "polyparaphenylene-terephthalamide" nor the phrase "crimped polyparaphenylene-terephthalamide yarn" can be found in the Abstract or anywhere throughout the entire specification of Kimura. Note that polyparaphenylene-terephthalamide is one of the species belonging to claimed para-aramid fibers.

Instead, the invention in Kimura relates to α,ω -alkylene-hexahydro-terephthalamide of the formula:



wherein n is an integer of 11-13. According to the common knowledge of those skilled in the art, the above polymer is not a heat-resistant high-functional fiber.

Furthermore, Kimura fails to disclose or suggest para-aramid fibers, meta-aramid fibers, holaromatic polyester fibers or polyparaphenylene-benzobisoxazole fibers as claimed. There are some disclosures on crimped yarn in Kimura, for example, at column 7, lines 9-19, at column 10, lines 8-21 and at column 13 (Example 4). However, there is no disclosure or suggestion for the "heat-resistant crimped yarn not deteriorating under heat comprising heat-resistant high-functional fibers selected from the group consisting of para-aramid fibers, meta-aramid fibers, holaromatic polyester fibers and polyparaphenylene-benzobisoxazole fibers" as now claimed.

Secondly the Examiner pointed out that on page 2 of the Office Action: (1) fibers of 0.02 to 1 tex (Example 2); (2) elongation percentage of stretch at least 6% (Table 1); (3) stretch modulus of elasticity at least 40% (Table 1); and (4) tenacity between 0.15 and 3.5 N/tex. However, as apparent from Example 2 and Table 1 (Example 1) of Kimura, these parameters are those for a copolyamide filament and not those for crimped yarn. In contrast, the corresponding parameters of the claimed invention are those for crimped yarn. Thus, Kimura fails to disclose the parameters/properties of the claimed crimped yarn.

Also, as disclosed in Example 4 of column 13 of Kimura, to produce crimped yarn from a copolyamide filament, a heating process, a winding process, a loading pressure, etc. are required. Even if the filament is the same, the parameters of the filament are quite different from those of crimped yarn made from the filament due to this manufacturing process. In this regard, Kimura

lacks a reasonable expectation of successfully modifying the prior art teachings to arrive at the parameters/properties of the claimed crimped yarn.

In sum, Kimura relates to α,ω -alkylene-hexahydro-terephthalamide which is not a heat-resistant high-functional fiber. Also, Kimura fails to disclose or suggest para-aramid fibers, meta-aramid fibers, holaromatic polyester fibers and polyparaphenylene-benzobisoxazole fibers. Nor does Kimura disclose or suggest the properties of the claimed crimped yarn. Thus, Kimura does not disclose or suggest each and every element of the claimed invention. Kimura also lacks a reasonable expectation of success. For these reasons, Kimura cannot anticipate nor render obvious the claimed invention.

In view of the above, the rejection of claims 1-3 and 6 under 35 U.S.C. § 102(b) is untenable and should be withdrawn.

IV. REJECTIONS UNDER 35 U.S.C. § 103

A. Kimura in view of Watanabe

Claims 4 and 5 are rejected under 35 U.S.C. § 103(a) as obvious over Kimura in view of Watanabe, U.S. Patent No. 5,776,597. See item 6 on page 3 of the Office Action.

Applicants respectfully traverse this rejection for the same reasons set forth immediately above with regard to Kimura, and for the reasons noted below.

To establish obviousness, three criteria must be met. First, the prior art references must teach or suggest each and every element of the claimed invention. Second, there must be some suggestion or motivation in the references to either modify or combine the reference teachings to arrive at the claimed invention. Third, the prior art must provide a reasonable expectation of success.

As discussed above, Kimura does not disclose polyparaphenylene-terephthalamide fibers. In fact, Kimura fails to disclose or suggest para-aramid fibers, meta-aramid fibers, holaromatic polyester fibers and polyparaphenylene-benzobisoxazole fibers. Kimura also fails to disclose the parameters/properties of the claimed crimped yarn and lacks a reasonable expectation of success.

Watanabe is relied upon for teaching polymetaphenylene-isophthalamide and

polyparaphenylene-terephthalamide fibers. The Examiner further indicates that it would have been obvious to utilize these fibers to perform every requirement of Kimura.

However, there is no suggestion to combine/modify these fibers with the teaching of Kimura to produce a crimped yarn with the claimed parameters of a “monofilament fineness of 0.02 to 1 tex, and of which the elongation percentage in stretch is at least 6 %, the stretch modulus of elasticity is at least 40 %, and the tenacity falls between 0.15 and 3.5 N/tex.” In this regard, neither prior art reference discloses or suggests the parameters/properties of the crimped yarn as claimed.

Therefore, the prior art fails to disclose or suggest each and every element of the claimed invention and the prior art also lacks a suggestion to combine the references to arrive at the claimed invention with a reasonable expectation of success. For these reasons, the prior art cannot render obvious the claimed invention.

In view of the above, the rejection of claims 4 and 5 under 35 U.S.C. § 103(a) is untenable and should be withdrawn.

B. Kimura in view of Prickett

Claims 7, 15, and 16 are rejected under 35 U.S.C. § 103(a) as obvious over Kimura in view of Prickett, U.S. Patent No. 6,103,371. See item 7 on pages 3-4 of the Office Action.

Applicants respectfully traverse this rejection for the same reasons set forth above with regard to Kimura, and for the reasons noted below.

The phrase "glove" is disclosed on column 1, line 45 of the Prickett.

According to the Examiner, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to utilize polyparaphenylene-terephthalamide as taught by Kimura in a glove. See the paragraph bridging pages 3-4 of the Office Action.

Similar to the rejection immediately above, the fundamental basis for this rejection is Kimura's alleged teaching of a heat resistant crimped polyparaphenylene-terephthalamide yarn. However, as discussed above, Kimura does not teach this.

Likewise, Prickett also fails to disclose or suggest the claimed fibers.

Thus, the cited prior art references fail to disclose or suggest each and every element of the claimed invention. For these reasons, the prior art cannot render obvious the claimed invention.

In view of the above, the rejection of claims 7, 15, and 16 under 35 U.S.C. § 103(a) is untenable and should be withdrawn.

C. Kimura in view of Watanabe and Prickett

Claims 17 and 18 stand rejected under 35 U.S.C. § 103(a) as obvious over Kimura in view of Watanabe and Prickett. See item 8 on page 4 of the Office Action.

This rejection is respectfully traversed for the reasons discussed above with regard to Kimura, Watanabe and Prickett.

In view of the above, the rejection of claims 17 and 18 under 35 U.S.C. § 103(a) is untenable and should be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is now in condition for allowance and early notice to that effect is hereby requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact the undersigned attorney at the telephone number below.

Respectfully submitted,

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ATTACHMENT TO AMENDMENT AND REPLY:

1. Japanese text and English translation of Test Method 8.11A of JIS L1013 (1999);
2. Copy of Rule 132 Declaration by Hatano, previously submitted in parent application Serial No. 09/913,851, now U.S. Patent No. 6,668,535.